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NOTES ON THE ERYSIPHACEAE OF WASHINGTON.

BY W. H. LAWRENCE, AGR. COLLEGE, WASH.

1. ERYSIPHE CICHORACEARUM DC.[1]— On Artemisia ludoviciana, Aster fremontii, A. pessicae, Eriogonum elatum, Galium aparine, G. trifidum, Helenium autumnale, Helianthella douglasii, Helanthus annuus, Hiracium albiflorum, Hosackia purshiana, Hydrophyllum capitatum, Nemophila parviflora, and Stachys ciliata.

The forms of E. cichoracearum in this locality apparently have larger asci and spores than forms in other localities. The asci average 50-96 x 28-64 mmm. and the spores 25-35 x 19-26 mmm.

Two perithecia on Hosackia purshiana each contained but a single ascus.

2. ERYSIPHE GRAMINIS DC.— On Agrostis exarata, Bromus marginatus, and var. latior.

This species is widely distributed throughout the eastern portion of the state but is not very abundant.

3. ERYSIPHE POLYGONI DC.— On Clematis ligusticifolia, Epilobium sp., Hosackia denticulata, H. parviflora, Hydrophyllum occidentale, Lathyrus maritimus, L. polyphyllus, Lupinus leucophyllus, L. sericeus, Mentha canadensis, Pisum sativum, Polygunum aviculare, Ranunculus platyphyllus, Thermopsis montana (Idaho), Trifolium longipes, T. pratense, T. tridentatum and Vicia sp.

Both E. polygoni and Sphaerotheca humili were found growing together on Vicia sp. E. polygoni is a variable, widely distributed and abundant species.

4. MICROSPHAERA ALNI DC.— This species occurs in the Puget Sound region on Alnus rubra. Occasionally the host is infested with both M. alni and Phyllactinia corylea.

5. MICROSPHAERA ALNI var. CALOCLADOPHORA Schlecht.— This species is abundant on Quercus garryana in the Puget Sound region.

6. MICROSPHAERA ALNI var. VACCINII Schlecht.—A rare variety on Vicia americana in eastern Washington.

7. MICROSPHAERA DIFFUSA Cooke & Peck.—On Symphoricarpus racemosus. Widely distributed and very abundant.

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[1] Salmon (Mono. Erysiphaceae) in giving the distribution of E. galeopsidis DC. includes Washington. All the specimens I have examined have had a few perithecia with asci containing spores. Because of the presence of spores all forms have been referred to E. cichoracearum nothwithstanding the fact that the haustoria in some cases were deeply crenulate-margined.

8. PHYLLACTINIA CORYLEA Persoon. — On Alnus rubra, Cirsium lanceolatum, Cornus canadensis, C. nuttallii, C. pubescens, C. stolonifera, Crataegus douglasii, C. piperi, Dipsacus sylvestris, Epilobium adenocaulon, Erigeron concinnus, Fragaria bracteata, Holodiscus discolor, Lactuca scariola, Mentha viridis, Philadelphus lewisii, Plantago major, Prunus demissa, Pyrus baccata, P. rivularis, Rhus toxicodendron, Ribes divaricatum, Rosa gymnocarpa, R. pisocarpa, Rumex occidentalis, Salix cordata, S. rostrata, Solidago serotina, Taraxacum officinale, and Viola nuttallii.

A very common species. There is a marked difference in the diameter of the perithecia on some hosts; perithecia on Cornus nuttallii measure 150-200 mmm., on Crataegus douglasii 160-180 mmm., on Pyrus rivularia 180-215 mmm., on Ribes divaricatum 235-270 mmm.; on many of the other hosts there is not so marked a variation.

9. PODOSPHAERA OXYACANTHAE DC.— A rare species on Prunus cerasus, Pyrus baccata, Spiraea corymbosa and Symphoricarpus racemosus.

10. PODOSPHAERA OXYCANTHAE var. TRIDACTYLA Wallr.— On Prunus emarginata, P. persica and Spiraea douglasii. Endemic to the Puget Sound region in vicinity of Seattle.

One perithecium measuring about 100 mmm. in diameter contained two asci. Each ascus measured 64 x 64 mmm., globose but somewhat depressed on one side near the base. Each contained eight spores of normal size and shape.

11. SPHAEROTHECA MORS-UVAE Schweinitz.— A rather common species growing on the cultivated gooseberry in eastern Washington.

12. SPHAEROTHECA HUMULI DC.— On Arnica pedunculata, Bidens frondosa, Geranium incisum, Geum macrophyllum, G. strictum, Gilia gracilis, G. heterophylla, G. linearis, G. microsteris, Lophanthus urticifolius, Mentha canadensis. Polemonium micranthum, Potentilla convallaria, P. gracilis, Rubus nutkanus, R. spectabilis, Troximon nuttallii and Vicia sp.

13. SPHAEROTHECA HUMILI *var.* FULIGINEA Schlecht.—On Brunella vulgaris, Castilleia miniata, Gaillardia aristata, Geranium incisum, Lophanthus urticifolius, Matricaria discoidea, and Microsteris troximoides.

There is little ground on which to separate the variety from the species. The perithecia of the variety on the average are smaller and the difference in the size of the cells in the outer wall is fairly constant. Cells in the outer wall of perithecia on Mentha canadensis vary in diameter from 12-45 mmm., averaging about 15 mmm. The larger irregular cells had faint walls or lines representing lost cell walls. Perithecia on a leaf of Lophanthus urticifolius had quite regular cells varying from 8-20 mmm.; on another the cells varied from 15-60 mmm., were very irregular in shape and were typical of the variety. In some perithecia taken from a single leaf of Brunella vulgaris the cells averaged 30 mmm.; in others 15 mmm.

14. Sphaerotheca pannosa Lév? — Mildew of the cultivated rose is common. The ascocarpic stage has not been collected on this host. The mildew is probably S. pannosa.

15. Uncinula necator Schweinitz.— On cultivated grapes in all grape growing districts.

16. Uncinula parvula Cooke & Peck.—Collected on Celtis occidentalis in the Snake River Valley. Not very abundant.

17. Uncinula salicis DC.— On Populus trichocarpa, Salix cordata, and S. scouleriana. Widely distributed but not abundant.

TWO NEW HAPLOSPORELLAS.

BY J. B. ELLIS AND E. BARTHOLOMEW.

Haplosporella diatrypoides E. & B.— Stroma subcarinose, orbicular, black, 1-1½ mm. in diameter, sunk in the inner bark, circumscribed by a black line which does not penetrate to the wood; at first covered by the epidermis which soon ruptures and disappears exposing a cinereous-white disc pierced by the punctiform ostiola. Perithecia minute, 4-10 in a stroma. Sporules oblong or oblong elliptical, light brown, 10-14 x 5-6 μ.

When the epidermis falls away the exposed stroma resembles that of Diatrype albopruinosa (Schw.).

On dead limbs of *Ulmus pubescens.* Natoma, Kan. Jan. 8, 1904. (No. 3132).

Haplosporella cercidis E. & B.— Stroma minute, ¾-1 mm. in diameter, seated on the surface of the inner bark, semi-erumpent and surrounded by the stellately cleft epidermis. The exposed part of the stroma white — more distinctly so than in H. diatrypoides E. & B.— and as in that species, pierced by the black punctiform ostiola. Perithecia 2-6 in a stroma, minute. Sporules oblong or elliptical, 12-15 x 5-6 μ.

This is closely allied to H. diatrypoides E. & B. but it differs in its rather larger sporules, smaller stroma and in the absence of any circumscribing line.

On dead limbs of *Cercis canadensis.* Natoma, Kans. Jan. 8, 1904. (No. 3133).